

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 38 (canceled)

39. (new) A plasma processing method comprising the steps of:

locating a specimen on a specimen table provided inside of a processing chamber;

supplying a processing gas during evacuation of the inside the processing chamber from a lower portion thereof;

generating plasma inside of the processing chamber to process a plurality of films stacked on the specimen;

circulating cooling mediums inside each of a central passage disposed in a central portion of a heat conductive member of a specimen table and a circumferential passage in a circumferential portion of the heat conductive member, a temperature of the cooling medium in the central passage being adjusted to be higher than a temperature of the cooling medium in the circumferential passage so as to provide a predetermined temperature difference therebetween;

supplying heat conductive gases to spaces between a rear surface of the specimen and an upper surface of the specimen table, the spaces including a central part and a circumferential part separated by a ring-like protrusion which is disposed on the upper surface of the specimen table and at a position between the central part and the circumferential part of the specimen table which contacts with the rear

surface of the specimen, and adjusting a pressure of the heat conductive gas at the central part of the spaces to be higher than a pressure of the heat conductive gas at the circumferential part of the space so as to provide a predetermined value of pressure difference therebetween; and

after processing an upper film of the plurality of films on the specimen while maintaining the temperatures of the coolant mediums and the pressures of the heat conductive gases, changing the value of the pressures of the heat conductive gases in the central part and the circumferential part of the spaces while maintaining the temperatures of the cooling mediums, and processing a lower film of the plurality of films on the specimen.

40. (new) A plasma processing method according to claim 39, wherein the pressures of heat conductive gases in the central part and the circumferential part of the spaces are adjusted on the basis of information obtained before processing of the specimen.

41. (new) A plasma processing method according to claim 40, wherein based on the information obtained, determining when the lower film should be processed with a temperature difference on the specimen which is larger than a temperature difference which can be formed by a maximum pressure difference between the central part and the circumferential part of the spaces, and changing the temperatures of the central portion and the circumferential portion of the heat conductive member while changing the pressures of the heat conductive gases in the central part and the circumferential part of the spaces.

42. A plasma processing method according to claim 39, wherein after processing the upper film of the plurality of films on the specimen while maintaining the temperatures of the heat conductive member and the pressures of the heat conductive gases, changing the value of the pressure difference between the central part and the circumferential part of the spaces so that the pressure of the heat conductive gas in the circumferential part is higher than the pressure in the central part of the spaces while maintaining the temperatures of the central and circumferential portions of the heat conductive member, and processing the lower film of the plurality of films on the specimen.

43. (new) A plasma processing method according to claim 42, wherein the pressures of heat conductive gases in the central part and the circumferential part of the spaces are adjusted on the basis of information obtained before processing of the specimen.

44. (new) A plasma processing method according to claim 43, wherein based on the information obtained, determining when the lower film should be processed with a temperature difference on the specimen which is larger than a temperature difference which can be formed by a maximum pressure difference between the central part and the circumferential part of the spaces, and changing the temperatures of the central portion and the circumferential portion of the heat conductive member while changing the pressures of the heat conductive gases in the central part and the circumferential part of the spaces.

45. (new) A plasma processing method comprising the steps of:

locating a specimen on a specimen table provided inside of a processing chamber;

supplying a processing gas during evacuation of the inside of the processing chamber from a lower portion thereof;

generating plasma inside of the processing chamber to process a plurality of films stacked on the specimen;

adjusting a temperature of a central portion of a heat conductive member of the specimen to be higher than a temperature of a circumferential portion of the heat conductive member of the specimen so as to provide a predetermined temperature difference therebetween;

supplying heat conductive gases to spaces between a rear surface of the specimen and an upper surface of the specimen table, the spaces including a central part and a circumferential part separated by a ring-like protrusion which is disposed on the upper surface of the specimen table and at a position between the central part and the circumferential part of the specimen table which contacts with the rear surface of the specimen, and adjusting a pressure of the heat conductive gas at the central part of the spaces to be higher than a pressure of the heat conductive gas at a circumferential part of the spaces so as to provide a predetermined value of a pressure difference therebetween; and

after processing an upper film of the plurality of films on the specimen while maintaining the temperatures of the heat conductive member and the pressures of the heat conductive gases, changing the pressures of the heat conductive gases in the central part and the circumferential part of the spaces while maintaining the temperatures of the portions of the heat conductive member, and processing a lower film of the plurality of films on the specimen.

46. (new) A plasma processing method according to claim 45, wherein the pressures of heat conductive gases in the central part and the circumferential part of the spaces are adjusted on the basis of information obtained before processing of the specimen.

47. (new) A plasma processing method according to claim 46, wherein based on the information obtained, determining when the lower film should be processed with a temperature difference on the specimen which is larger than a temperature difference which can be formed by a maximum pressure difference between the central part and the circumferential part of the spaces, and changing the temperatures of the central portion and the circumferential portion of the heat conductive member while changing the pressures of the heat conductive gases in the central part and the circumferential part of the spaces.

48. A plasma processing method according to claim 45, wherein after processing the upper film of the plurality of films on the specimen while maintaining the temperatures of the heat conductive member and the pressures of the heat conductive gases, changing the value of the pressure difference between the central part and the circumferential part of the spaces so that the pressure of the heat conductive gas in the circumferential part is higher than the pressure in the central part of the spaces while maintaining the temperatures of the portions of the heat conductive member, and processing the lower film of the plurality of films on the specimen.

49. (new) A plasma processing method according to claim 48, wherein the pressures of heat conductive gases in the central part and the circumferential part of the spaces are adjusted on the basis of information obtained before processing of the specimen.

50. (new) A plasma processing method according to claim 49, wherein based on the information obtained, determining when the lower film should be processed with a temperature difference on the specimen which is larger than a temperature difference which can be formed by a maximum pressure difference between the central part and the circumferential part of the spaces, and changing the temperatures of the central portion and the circumferential portion of the heat conductive member while changing the pressures of the heat conductive gases in the central part and the circumferential part of the spaces.